"I shall cite evidence to show that they [extraterrestrials] have long since invaded and that their effects can be uncovered by historical research."

—Michael J. Crowe, *The Extraterrestrial Life Debate*

Do you remember your first encounter with *Star Wars*? I recall lightning-fast ships traversing a distant galaxy, odd-looking aliens socializing at a rough cantina, and a young Luke Skywalker preparing to engage in an epic battle against the Empire. With all the amazing special effects (state-of-the-art at the time), what eight-year-old boy wouldn't find the movie memorable? The billions of dollars generated by the *Star Wars* franchise demonstrates its widespread popularity. Furthermore, extraterrestrial life features prominently in one-fifth of the top 100 box office films of all time. Whether they exist or not, aliens have already invaded human civilization. But here is the key question: Does life, especially intelligent life, exist beyond the confines of Earth?

What Science Brings to the Discussion

Scientifically, the field of astrobiology exists to answer this question. Astrobiology is somewhat difficult to define. It crosses many scientific disciplines, including cosmology, astronomy, planetary science, geophysics, geology, biochemistry, microbiology, and computer programming. It requires telescope observations, laboratory experiments, theoretical calculations, and computer simulations. Astrobiology investigates things at the frontier of scientific knowledge, and it seeks to understand the most complicated reality in the universe—life itself.

Over the past two or three decades, science has discovered a wealth of data relevant to the question of extraterrestrial intelligent life. Perhaps the most remarkable breakthrough is that scientists have discovered planets outside of our solar system, called exoplanets. Astronomers discovered the first of these in 1992, but it orbits a pulsar—a dead star with no chance of hosting life. Since then, astronomers have discovered thousands of exoplanets. Many are the size of Jupiter since those are easiest to detect, while some orbit their host stars in only a few

hours. Astronomers have even found planets orbiting binary (double) stars. (Maybe Luke Skywalker could be wistfully observing a double-star sunset somewhere!) More importantly, scientists can now apply good, hard data to what was once only a theoretical idea. Nevertheless, scientists have little knowledge of what these exoplanets look like because that's all our technology allows. Scientists have no idea whether any of these exoplanets have liquid water. However, researchers remain optimistic about gaining answers. In the coming decades, technology will continue to advance to a point that will one day allow scientists to assess whether some of these plants actually host life.

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The search for planets outside our solar system has revealed an astounding fact: The Milky Way Galaxy hosts 400 billion Earth-sized planets. Many, if not most, of these planets cannot host life. A smaller faction will orbit in the habitable zone, the region around a star where planets receive enough energy to keep all water from freezing but not so much heat that all the water evaporates. Some might even contain liquid water. Is existence in the habitable zone and the presence of liquid water a sufficient set of conditions for life to exist? Scientists don't know the answer to that question—at least not yet.

Hydrogen, carbon, and oxygen (helium is actually number two, but it doesn't react chemically) rank as the three most abundant elements in the universe. And water is the third most abundant *molecule* in the universe. These facts raise another interesting astrobiology question: Must all life out there be based on carbon and operate in a liquid water matrix? A formidable wealth of data demonstrates that carbon stands alone among the elements in its chemical complexity—a complexity that life's biochemistry requires. Similarly, water seems the ideal fluid. Furthermore, the temperature range where carbon has optimal reaction rates corresponds to water's liquid range. Obviously there's a lot more to learn, but it truly seems like carbon and water were designed to host life!

What Theology Brings to the Discussion

While science might tell us much about any hypothetical life in the universe, it doesn't address the more foundational questions. What would it mean if scientists found bacterial life on a planet orbiting some other star? What if they found evidence of intelligent life? Answers to these questions raise issues that hit at the heart of who we are, who God is, and how we relate to him. To address those issues well requires good theology!

I subscribe to the "two books" theory of dual revelation as articulated by my colleague **Kenneth Samples**. "God took the initiative to reveal himself in two ways: through *general revelation* (the knowledge of God that comes via the created order), and *special revelation* (the knowledge of God that comes via redemptive history) . . . **God is the author of both the figurative book of nature (God's world) and the literal book of Scripture (God's written Word).**" Since all truth is God's truth, any truth we find in nature must accord with the truth contained in Scripture. While easy to state in principle, in practice Christians have disagreed (sometimes vehemently) about how this idea works out. With that caveat, there seems to be broad agreement in the Christian community that (1) God is the Creator of all that exists; (2) Humanity rebelled against God's authority and stands in judgment; (3) The second person of the Godhead, Jesus, came to Earth, lived among us as a man—fully God and fully man—and bore our sins on the cross; (4) On the third day he rose again; and (5) Those who receive Jesus' atonement by faith will live forever with him in the new creation.

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us to consider otherwise neglected issues.

How would the discovery of life beyond Earth impact these essential truths? At one level, it would not affect them at all because the discovery of life elsewhere does not change what God accomplished here on Earth. On another level, Christians need to answer whether extraterrestrial intelligent life would change our understanding of redemption in a way that would radically alter historic Christian thought. As I personally investigated this possibility while writing my book, ***Is There Life Out There?***, I was pleasantly surprised to find that many Christians before me had considered these issues. Furthermore, prominent Christian theologians had been contemplating whether intelligent life exists elsewhere for hundreds of years. In other words, Christianity wasn't playing catch-up as scientific discoveries forced us to consider otherwise neglected issues.

In ***Knowing Scripture***, R. C. Sproul says that, "the issue for Christians is not whether we are going to be theologians but whether we are going to be good theologians or bad ones." The church needs good theologians, both professional and lay, because the church has much to contribute to the important and pervasive conversation raised by astrobiological research!

Engaging the Discussion

Many people, both believers and nonbelievers, would see the discovery of life beyond Earth as a major strike against the truth of Christianity. On one hand, this view reflects the ignorance surrounding the rich theological history of the church. On the other hand, it presents a tremendous opportunity to engage culture with this rich history. I guarantee that if you ask a person or a small group if they think alien life exists, you will start a lively and possibly heated discussion. Most people truly enjoy this topic.

In my experience, most people hold passionate views about extraterrestrial life but offer little evidence to support these views. If you have a working knowledge of the fields covered in astrobiology, your influence and ability to guide the conversation grows dramatically. If you also know the rich theological history related to life beyond Earth, your ability to share the gospel increases as well. And that's true whether or not we find extraterrestrial life in the future.

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Jeff Zweerink | Reasons to Believe

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